

## Applicant Initiated Interview Request Form

Application No.: 10/536,704 First Named Applicant: Nobuyoshi Takeuchi  
 Examiner: Walford, Natalie K. Art Unit: 2879 Status of Application: Final OA

## Tentative Participants:

(1) Joseph W. Price (2) Examiner with Signatory Authority

(3) \_\_\_\_\_ (4) \_\_\_\_\_

Proposed Date of Interview: earliest convenience Proposed Time: earliest convenience (AM/PM)

## Type of Interview Requested:

(1)  Telephonic (2)  Personal (3)  Video Conference

Exhibit To Be Shown or Demonstrated:  YES  NO

If yes, provide brief description: \_\_\_\_\_

## Issues To Be Discussed

Issues (Rej., Obj., etc.)	Claims / Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) Rej. _____	_____	<u>Oda et al.</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(2) _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(3) _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(4) _____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Continuation Sheet Attached

## Brief Description of Arguments to be Presented:

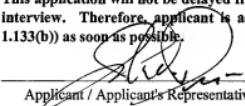
See attached Claim 1 in DRAFT Rule 116 Amendment.

Oda et al. teaches a sintered crystal grain size in a range of 20 to 60 um, Col. 2, lines 11-32.

An interview was conducted on the above-identified application on \_\_\_\_\_.

NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).

This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

  
Applicant / Applicant's Representative Signature

Examiner / SPE Signature

**Joseph W. Price**

Typed/Printed Name of Applicant or Representative

**25,124**

Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

**RESPONSE UNDER 37 CFR SECTION 1.116  
EXPEDITED PROCEDURE - GROUP 2879**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Nobuyoshi Takeuchi

Serial No.: 10/536,704

Filed: May 27, 2005

For: METAL HALIDE LAMP WITH  
IMPROVED CERAMIC TUBE

Patent Examiner: Walford, Natalie K.

Group Art Unit: 2879

Confirmation No. 9263

**DRAFT**

March 24, 2008

Costa Mesa, California 92626

**RULE 116 RESPONSE TO OFFICE ACTION**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sirs:

In response to the Office Action of January 4, 2008, please consider the following:

IN THE CLAIMS:

1. (Currently Amended) A metal halide lamp comprising an arc tube that includes:
  - a pair of electrode structures, each of which has an electrode at a tip;
  - a main tube part made of sintered polycrystalline alumina ceramic having magnesium oxide of 200 ppm or below, and containing a discharge space in which the electrodes

5 of the electrode structures are located to oppose each other; and

  - a pair of thin tube parts that connect from the main tube part and are sealed by respective sealing members with the electrode structures inserted therein, wherein

20 $\leq$ WL $\leq$ 50, EL/Di  $\geq$  2.0, and 0.5 $\leq$ G $\leq$ 1.5 are satisfied, where tube wall loading of the arc tube is WL(W/cm<sup>2</sup>), a distance between the electrodes is EL(mm), an inner diameter of 10 the main tube part is Di(mm), and a crystal grain diameter of the sintered polycrystalline alumina ceramic is G( $\mu$ m).

2. (Cancelled)
3. (Original) The metal halide lamp of Claim 1, wherein the inner diameter Di(mm) of the main tube part satisfies 2.0 $\leq$ Di $\leq$ 10.0.
4. (Cancelled)
5. (Original) The metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more.
6. (Currently Amended) A metal halide lamp comprising an arc tube that includes:
  - a pair of electrode structures, each of which has an electrode at a tip;

a main tube part made of sintered polycrystalline alumina ceramic having magnesium oxide in a range of 1 ppm to 200 ppm wherein a uniform grain dimension is provided, and containing a discharge space in which the electrodes of the electrode structures are located to oppose each other; and

a pair of thin tube parts that connect from the main tube part and are sealed by respective sealing members with the electrode structures inserted therein, wherein

$20 \leq WL \leq 50$ ,  $EL/Di \geq 2.0$ , and  $0.5 \leq G \leq 1.5$  are satisfied, where tube wall loading of the arc tube is  $WL(W/cm^2)$ , a distance between the electrodes is  $EL(mm)$ , an inner diameter of the main tube part is  $Di(mm)$ , and a crystal grain diameter of the sintered polycrystalline alumina ceramic is  $G(\mu m)$ .

7. (Cancelled)

8. (Previously Presented) The metal halide lamp of Claim 6, wherein the inner diameter  $Di(mm)$  of the main tube part satisfies  $2.0 \leq Di \leq 10.0$ .

9. (Previously Presented) The metal halide lamp of Claim 1, wherein the polycrystalline alumina ceramic has transmittance of 94% or more.

REMARKS

Claims 1, 3, 5, 6, and 8 and 9 were rejected over the Keijser et al. US Patent No. 6,300,729 in view of the Oda et al. US Patent No. 4,214,666.

The Office Action basically repeated the same rejection that had been set forth in the Office Action of July 26, 2007. This included acknowledging that the Keijser et al. reference did not disclose a ceramic with a polycrystalline alumina having magnesium oxide of 200 ppm or below nor that  $0.5 \leq G \leq 1.5$  was satisfied with a crystal grain diameter of the polycrystalline alumina ceramic is  $G(\mu\text{m})$ .

The Office Action specifically relied upon the Oda et al. reference to teach a crystal grain diameter of the sintered polycrystalline ceramic tube to be within the claimed range of 0.5 to 1.5  $\mu\text{m}$  for a crystal grain diameter.

In the response to Applicant's Remarks, the Office Action mistakenly contended that applicant had argued that MgO could not be made from a powder. Applicant respectfully traverses this contention. Our responding amendment of October 19, 2007 clearly set forth the following contentions on Pages 4 and 5:

The above parameters of our invention are defined in relationship to an actual arc tube as set forth in each of the independent claims. That is, they are describing the actual main tube part after it has been appropriately mixed in a powder form, molded to a tubular shape, dried and sintered to the final product configuration. As a result of an elevated temperature in sintering, the polycrystalline alumina ceramic with the magnesium oxide supports a specific crystal grain diameter within the range mentioned above.

Thus, the actual crystalline grains in the finished arc tube meet these requirements.

As will be discussed with regards to the cited references, this is an important feature to understand in distinguishing our present invention over the prior art. (Underline added)

Applicant teaches that its polycrystalline alumina was formed into a ceramic having magnesium oxide of 200 ppm or below. The only initial mix is in a powder form when it is molded to a tubular shape, dried and then specifically sintered to the final ceramic tubular product configuration. Thus, the final sintered crystalline grains in the finished arc tube have a crystal grain diameter between 0.5  $\mu\text{m}$  and 1.5  $\mu\text{m}$  as set forth in our equation in both claims 1 and 6.

When referring to the finished product, it is understood that it is a ceramic and a ceramic that has been created under elevated temperature by sintering. To prevent any confusion or misinterpretation, applicant is proposing the terminology "sintered" to remove any confusion with an initial powder configuration of the raw mix.

With this clarification, it is believed that the present application is allowable and that there has been a misinterpretation of the actual teachings in the Oda et al. reference. The Oda et al. reference clearly describes on Column 2, line 24 to line 32 that it is important for a person of skill in this field to have a crystal grain size of a polycrystalline transparent alumina within a range of 20 to 60  $\mu\text{m}$ . This is the same measurement of crystal grain size as set forth in our claims of alumina ceramic crystalline diameters and it is clearly way beyond our desired level. As noted by Oda et al., if this teaching was violated and went below a crystal grain size of 20  $\mu\text{m}$ , it would increase the mechanical strength but "the light transmission properties are deteriorated". Thus, the Oda et al. reference directly teaches away from the improved light transmission features of our present invention and cannot be utilized by persons skilled in the art to modify Keijser et al.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994); *see KSR*, 127 S. Ct. at 1739-40 (explaining that when the prior art teaches away from a combination, that combination is more likely to be nonobvious). Additionally, a reference may teach away from a use when that use would render the result inoperable. *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1354 (Fed. Cir. 2001).

*In re Icon Health and Fitness, Inc.* 2007 U.S. App. Lexis 18244,  
\*10

It is believed that the case is now in condition for allowance and early notification of the same is requested.

Very truly yours,

**SNELL & WILMER L.L.P.**  
**DRAFT**

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Joseph W. Price  
Registration No. 25,124  
600 Anton Boulevard, Suite 1400  
Costa Mesa, California 92626-7689  
Telephone: (714) 427-7420  
Facsimile: (714) 427-7799